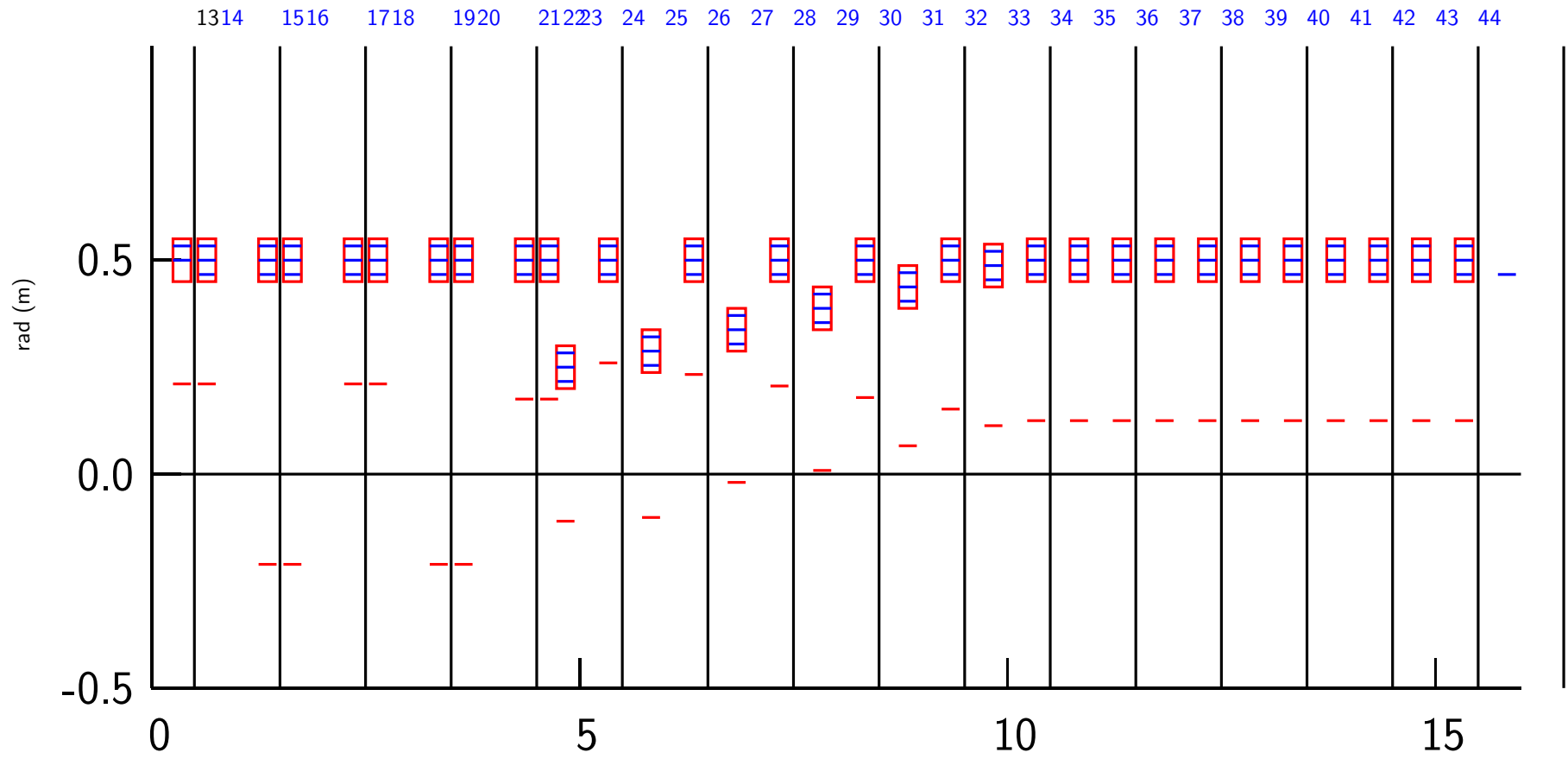


# Match into 6D Cooling

04/22/14

Vacuum rf 6D cooling phone Meeting

R. B. Palmer (BNL)



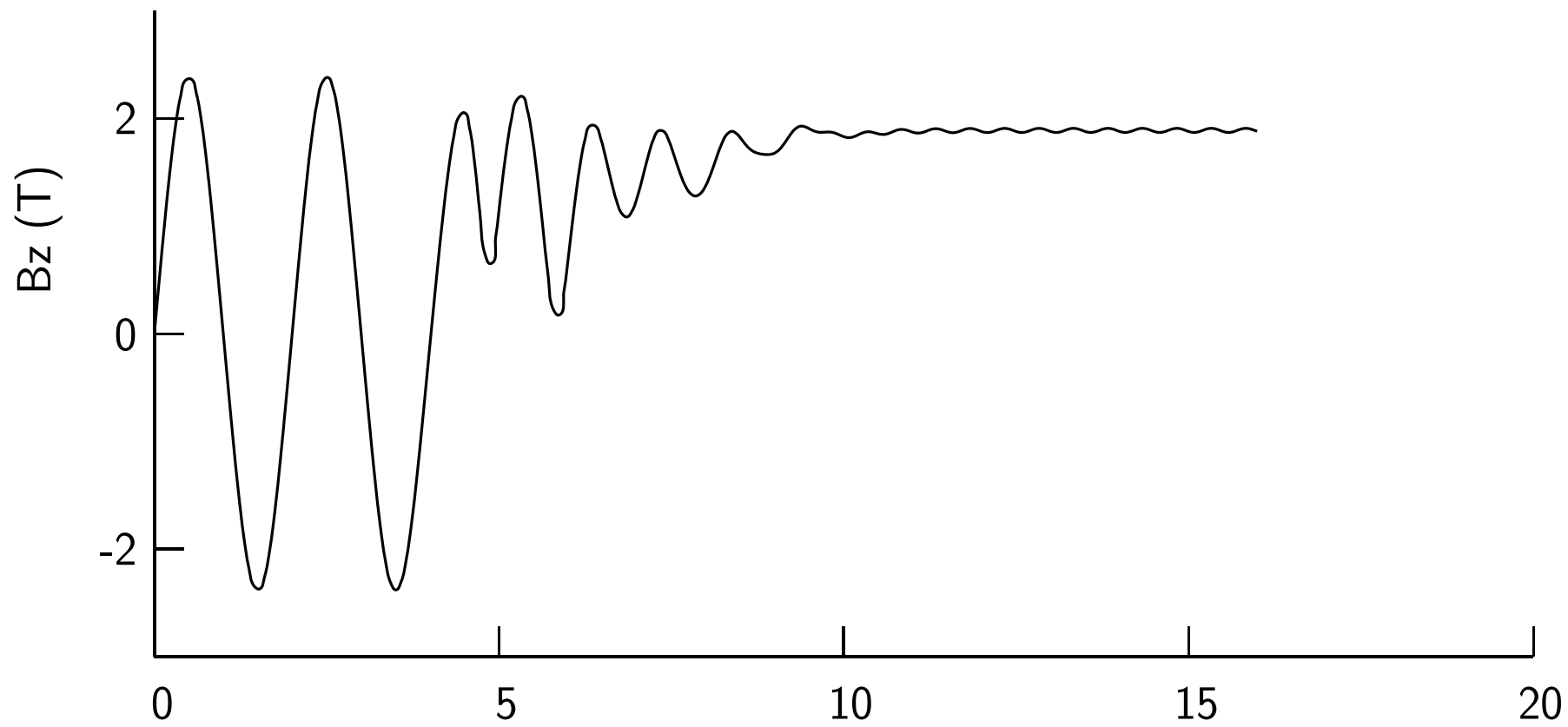


Fig. 2

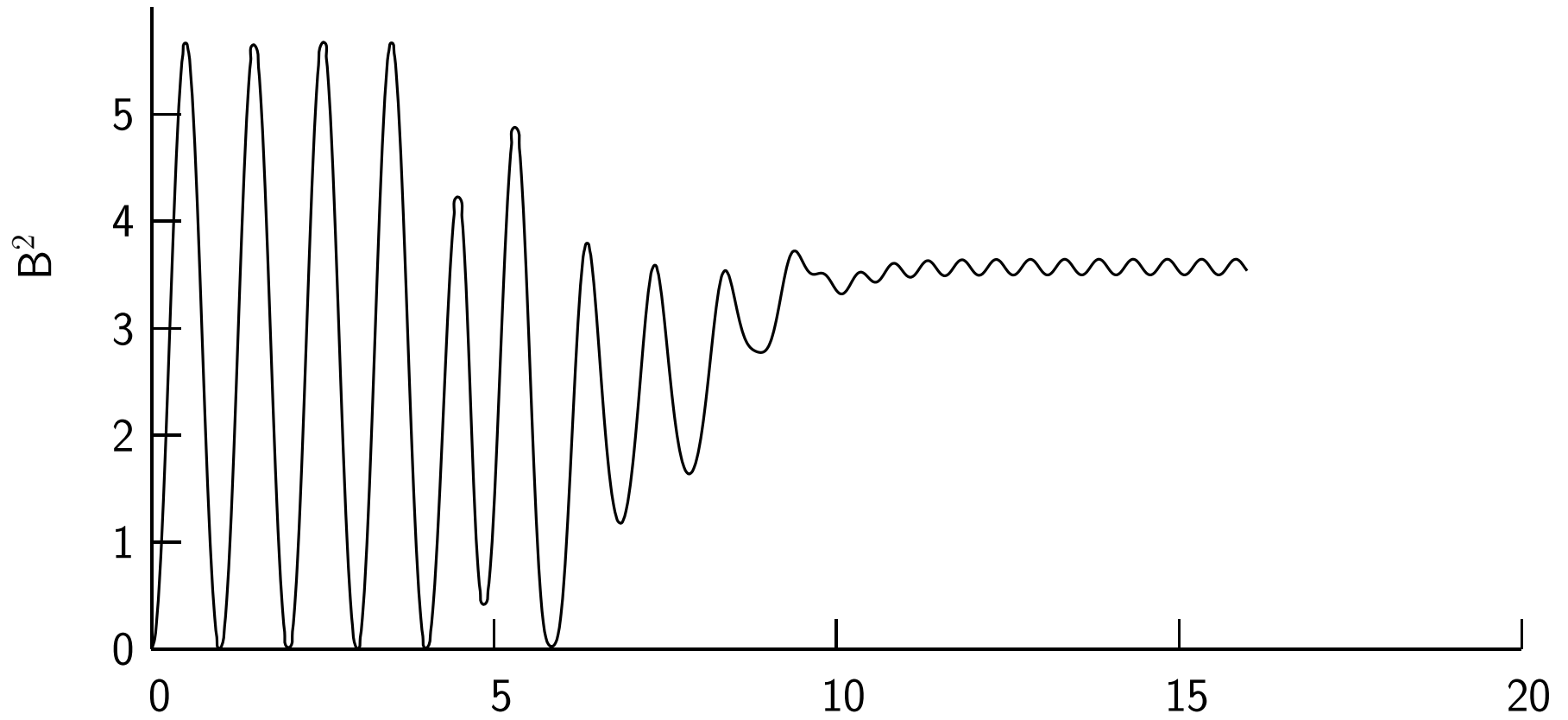


Fig. 3

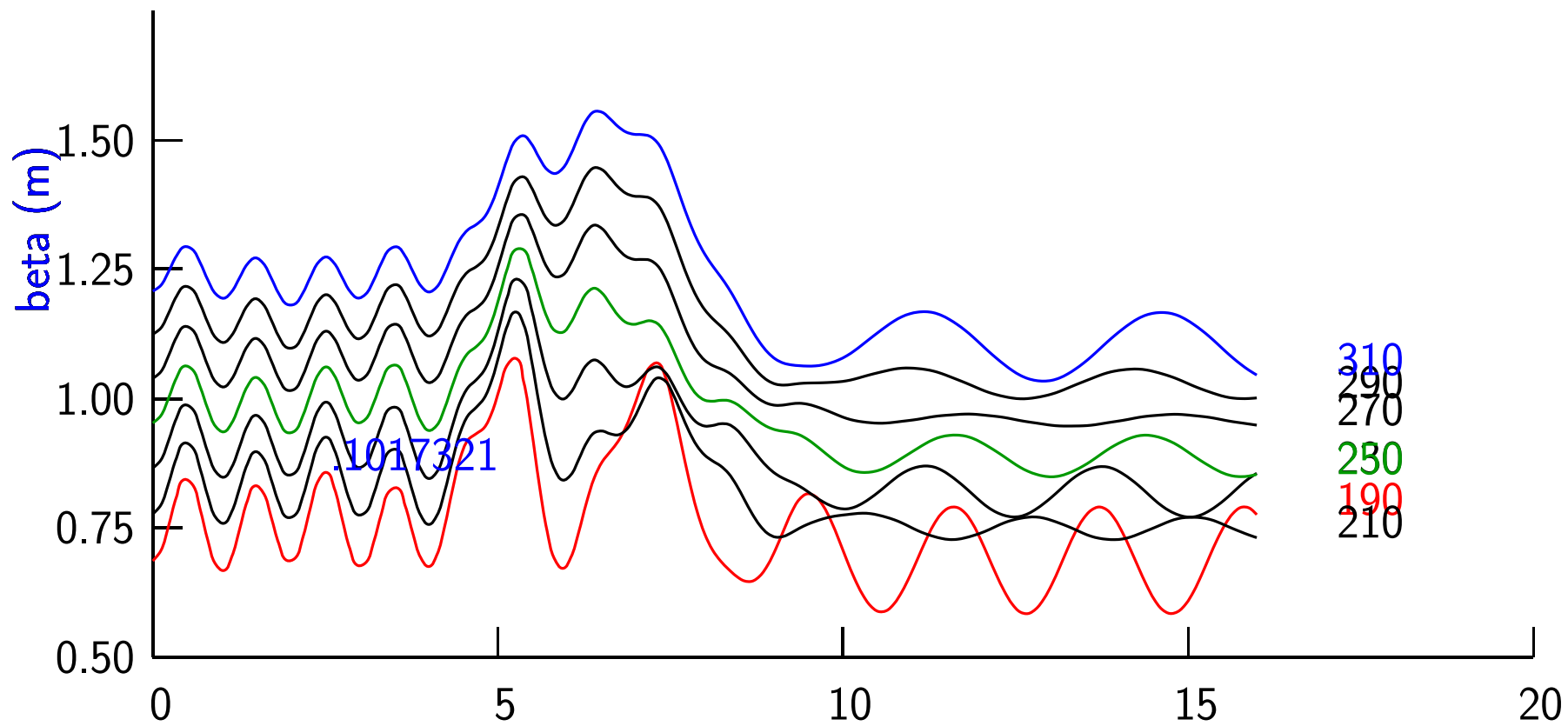
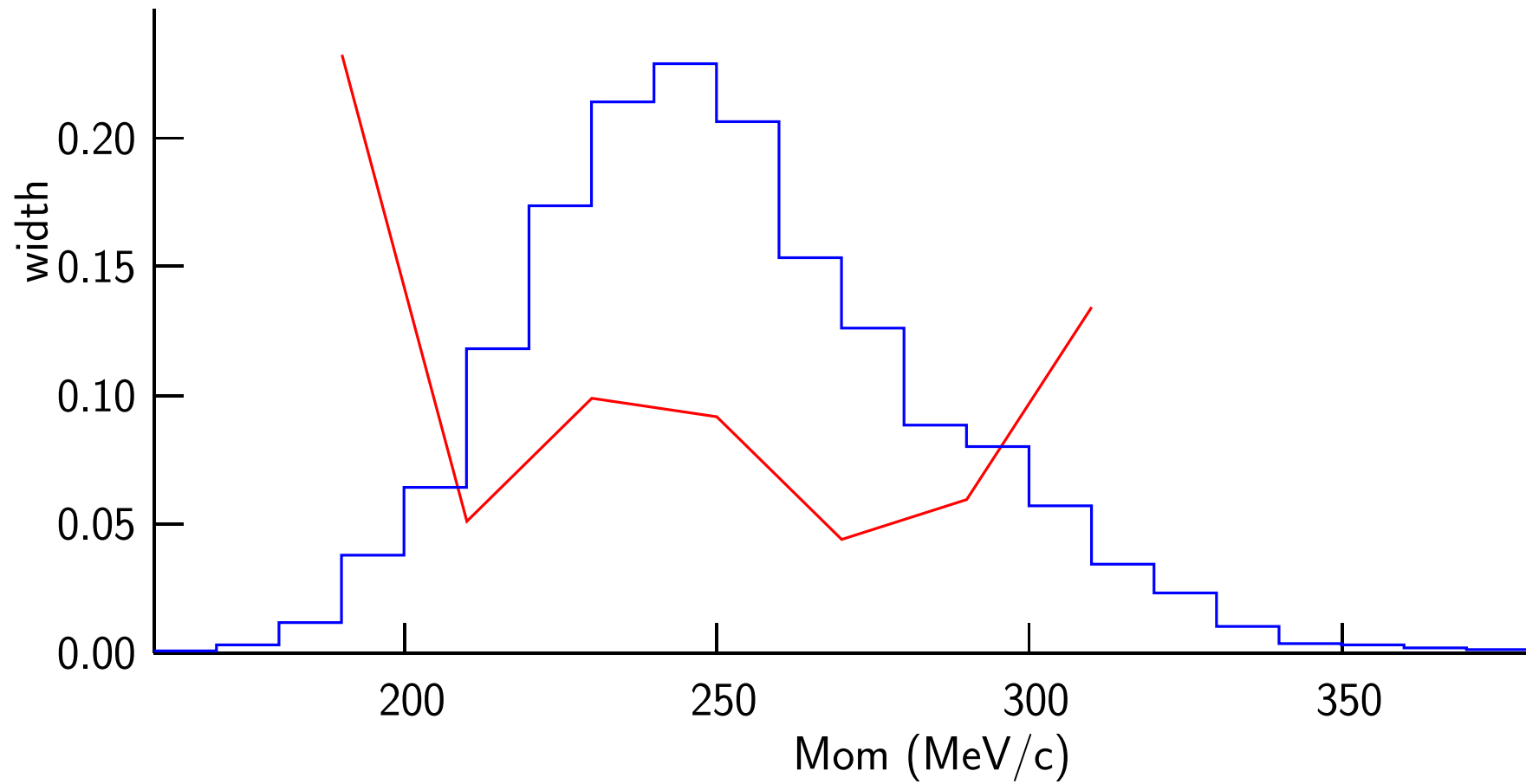


Fig. 4



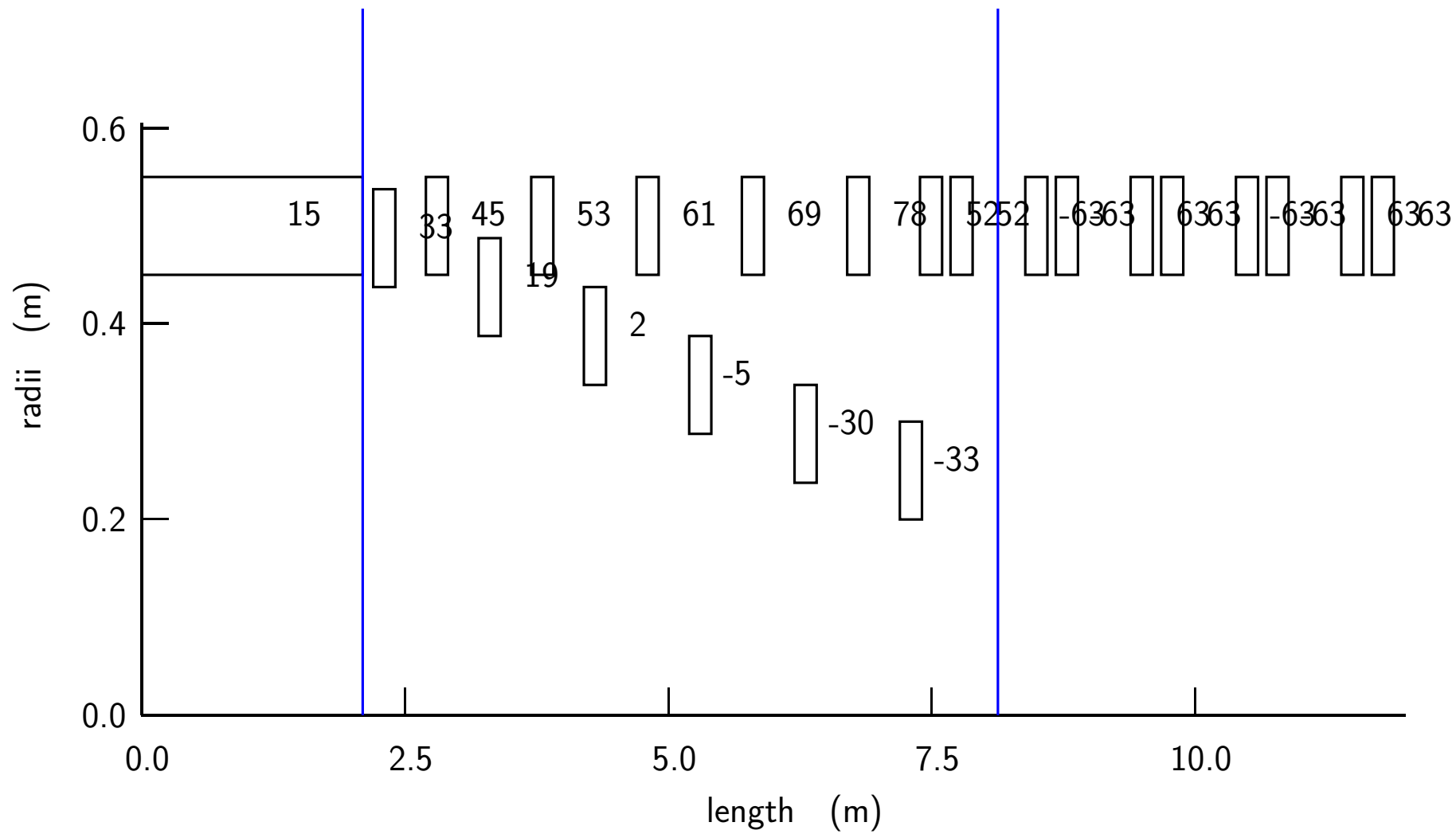
match is good over "good" momentum range

# ICOOOL Simulation

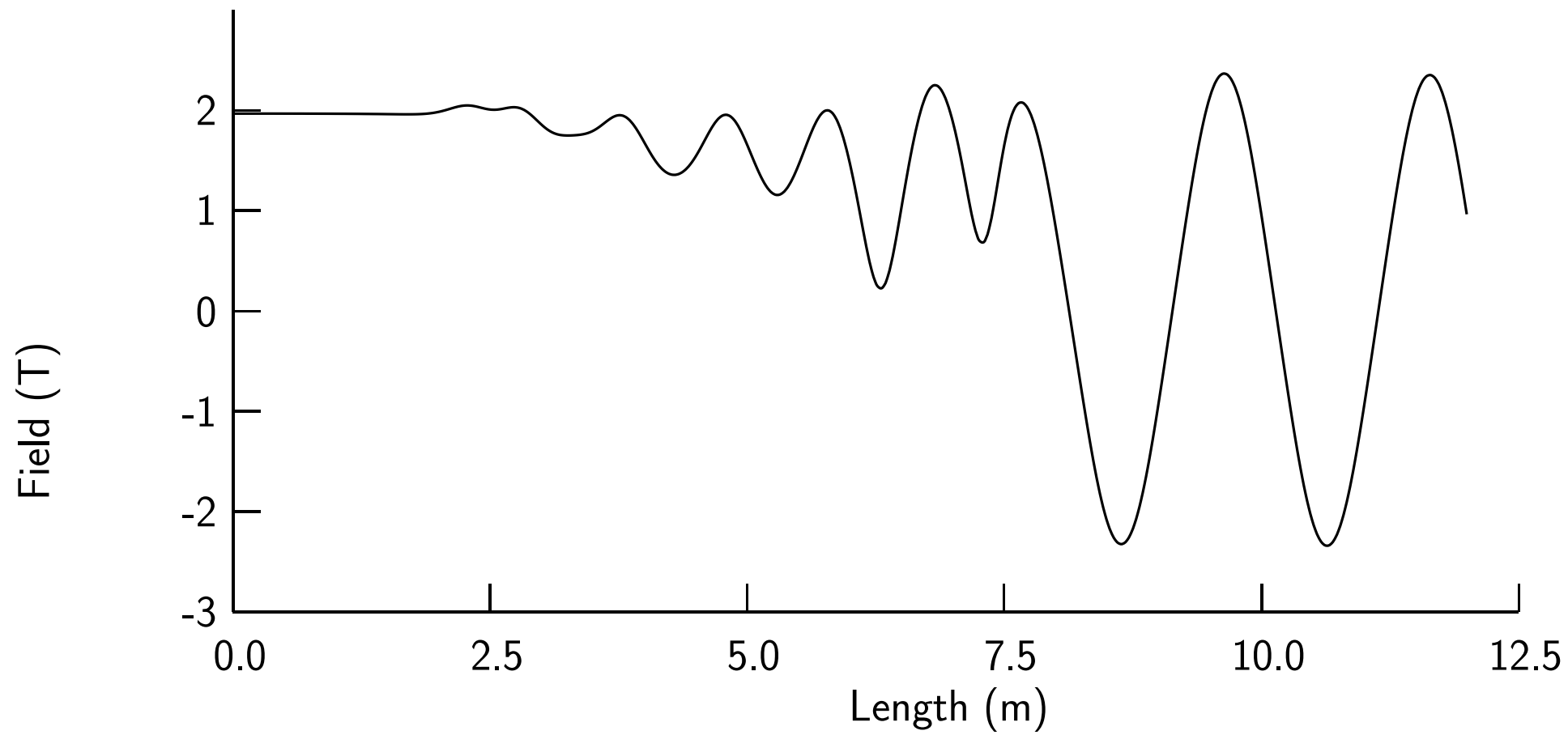
Using Diktys end-of-phase rotation file of "good" muons

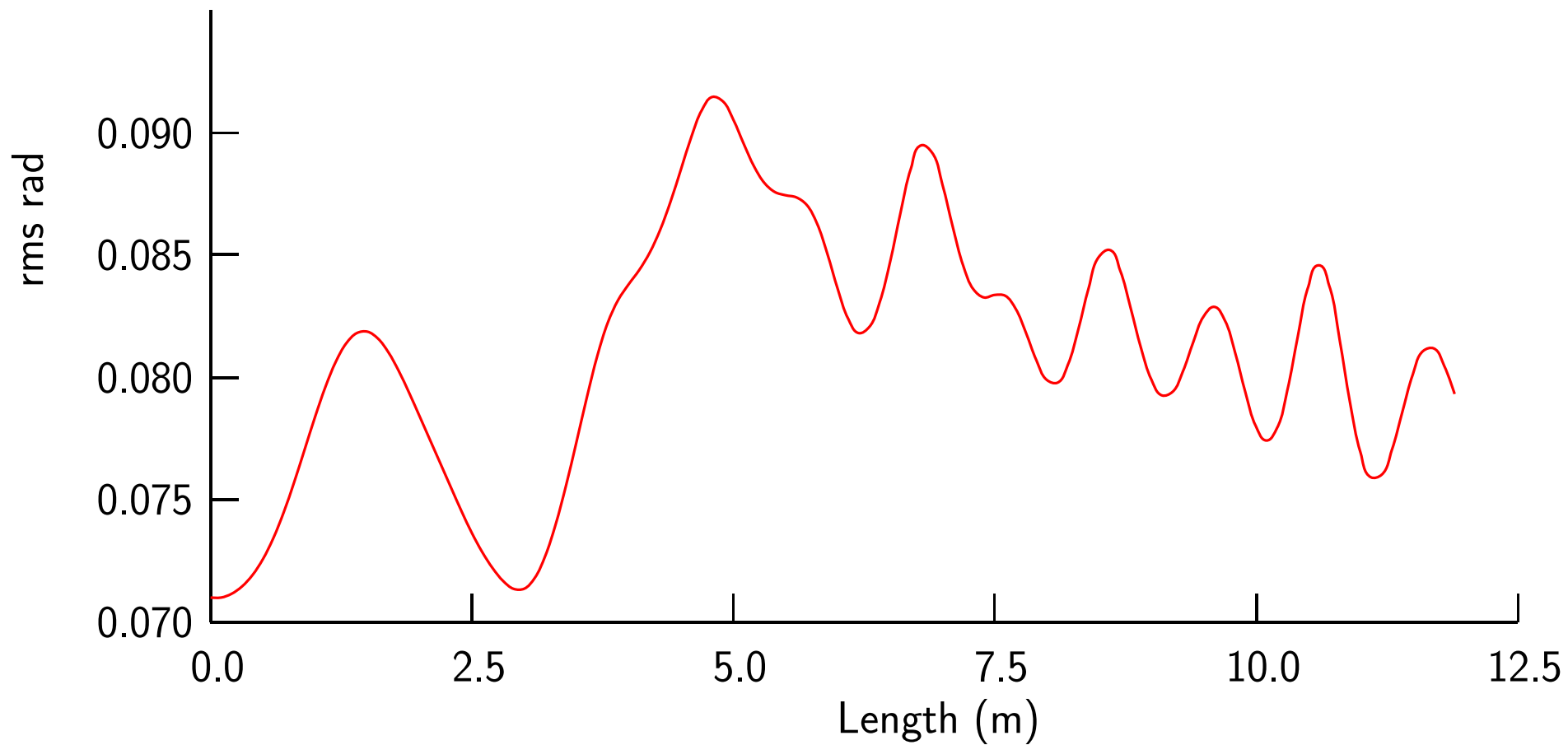
$z_{start}$ m	gap m	dl m	rad m	dr m	I/A A/mm <sup>2</sup>	n l A	n l l A m
4.200	0.000	2.100	0.450	0.100	15.75	3.31	10.39
6.400	0.100	0.210	0.438	0.100	33.98	0.71	2.19
6.900	0.290	0.210	0.450	0.100	45.60	0.96	3.01
7.400	0.290	0.210	0.387	0.100	19.88	0.42	1.15
7.900	0.290	0.210	0.450	0.100	53.70	1.13	3.54
8.400	0.290	0.210	0.338	0.100	2.60	0.05	0.13
8.900	0.290	0.210	0.450	0.100	61.80	1.30	4.08
9.400	0.290	0.210	0.287	0.100	-5.79	0.12	0.26
9.900	0.290	0.210	0.450	0.100	69.90	1.47	4.61
10.400	0.290	0.210	0.237	0.100	-30.39	0.64	1.15
10.900	0.290	0.210	0.450	0.100	78.00	1.64	5.15
11.400	0.290	0.210	0.200	0.100	-33.00	0.69	1.09
11.591	-.019	0.210	0.450	0.100	52.62	1.11	3.47
11.881	0.080	0.210	0.450	0.100	52.62	1.11	3.47
12.591	0.500	0.210	0.450	0.100	-63.25	1.33	4.17
12.881	0.080	0.210	0.450	0.100	-63.25	1.33	4.17
13.591	0.500	0.210	0.450	0.100	63.25	1.33	4.17

In the following plots the horizontal scale is 2.1 m shifted from the  $z_{start}$  in above table

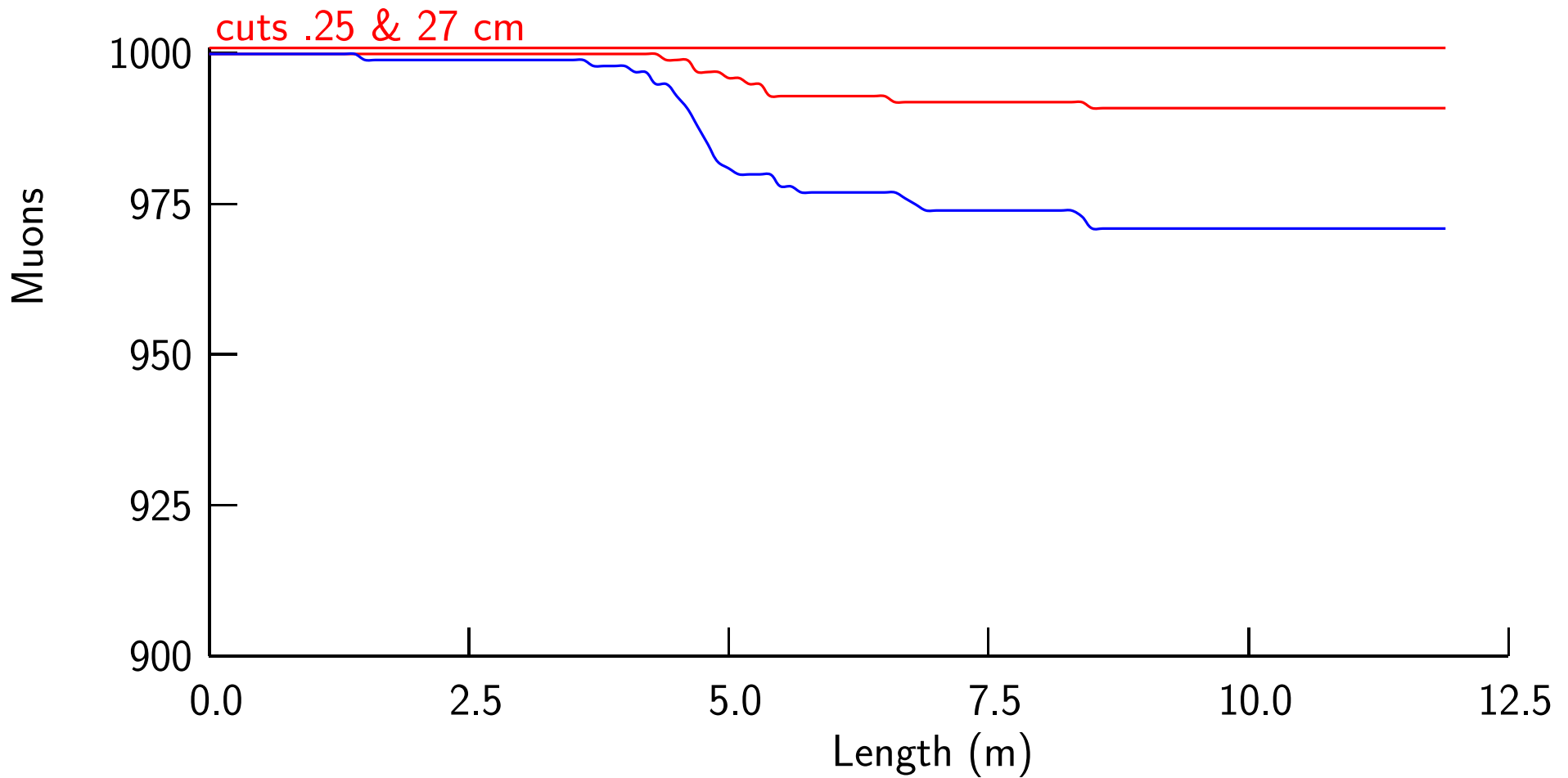






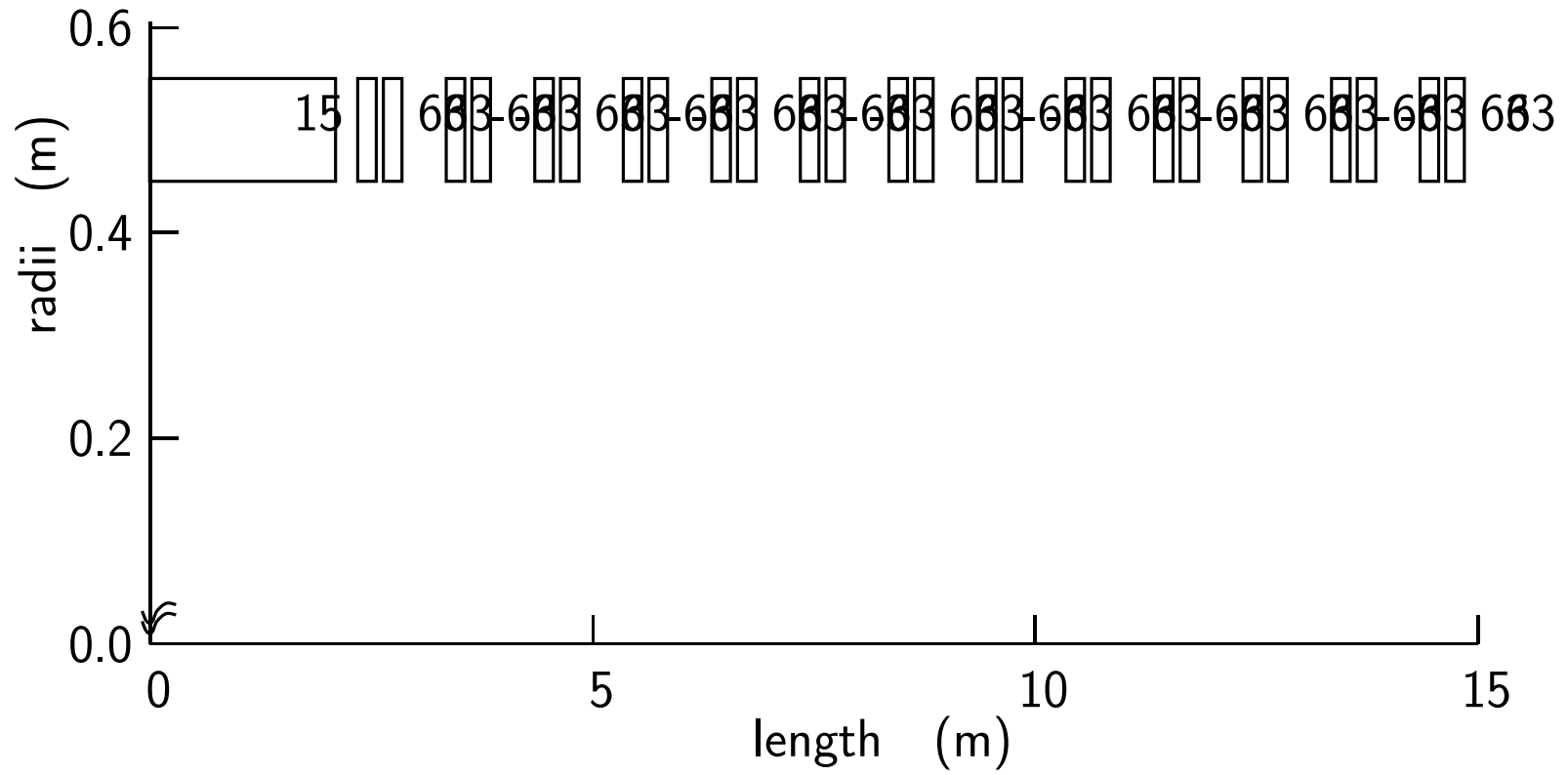


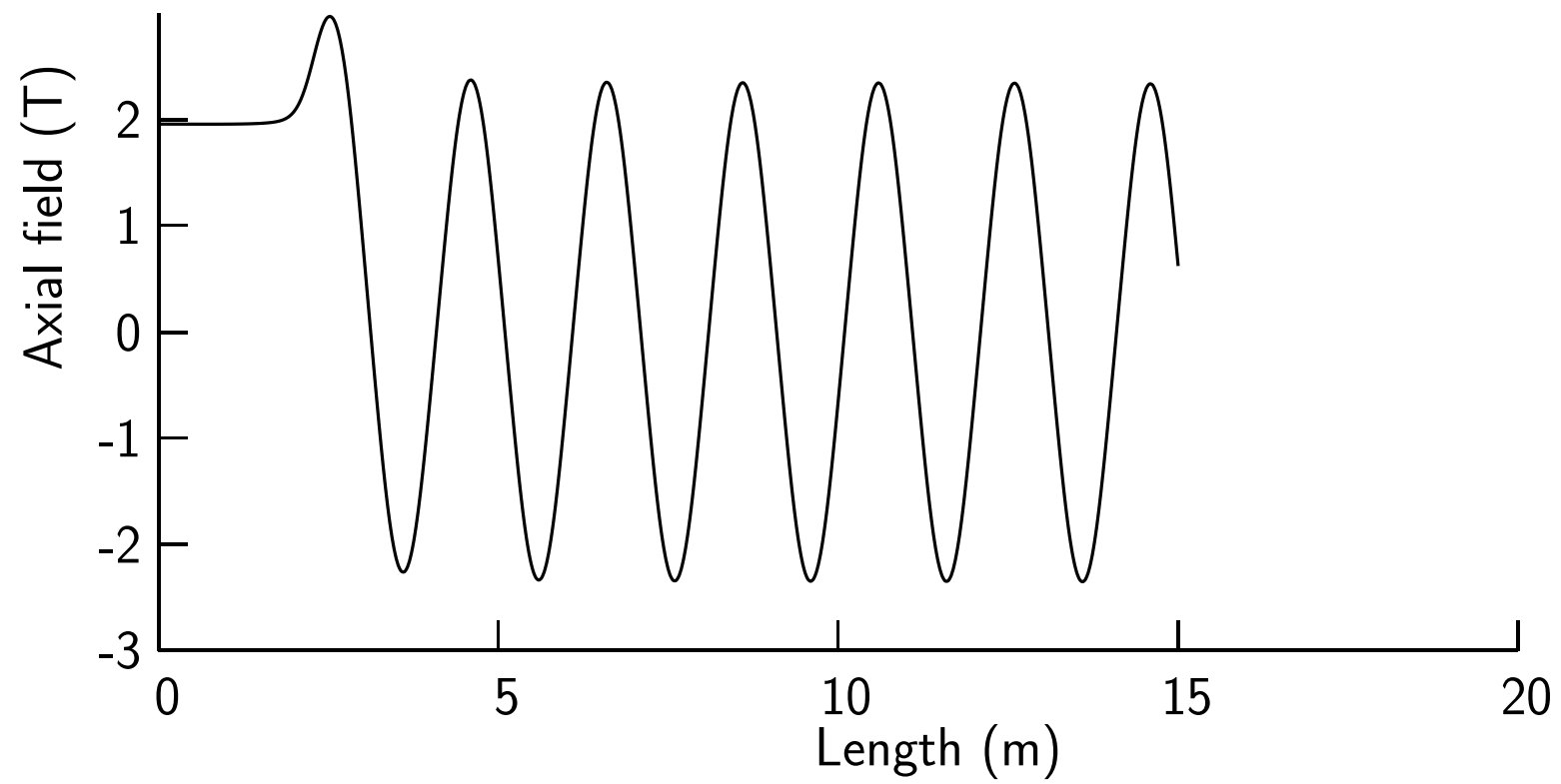
Note significant mismatch into 2 T field

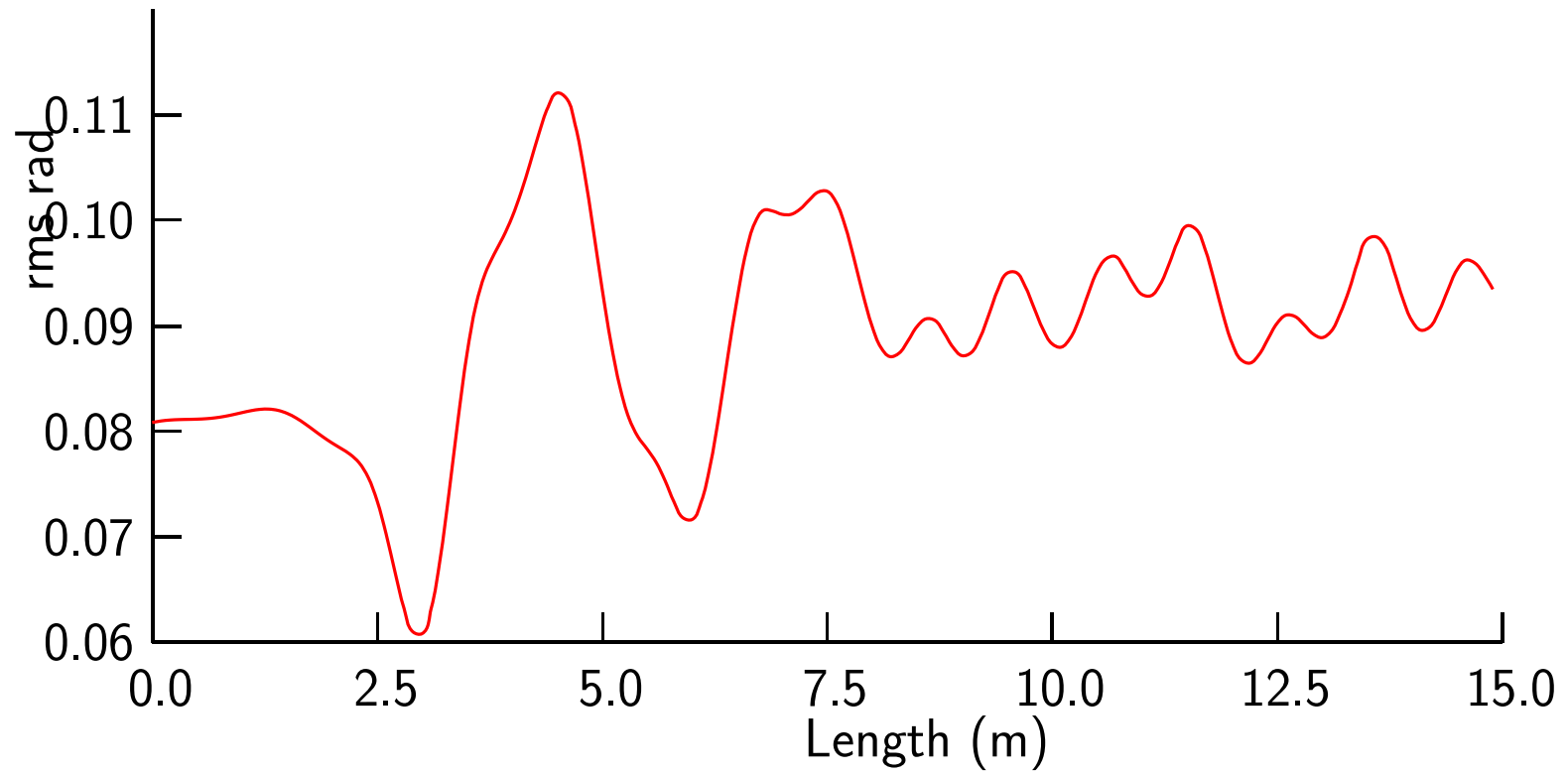


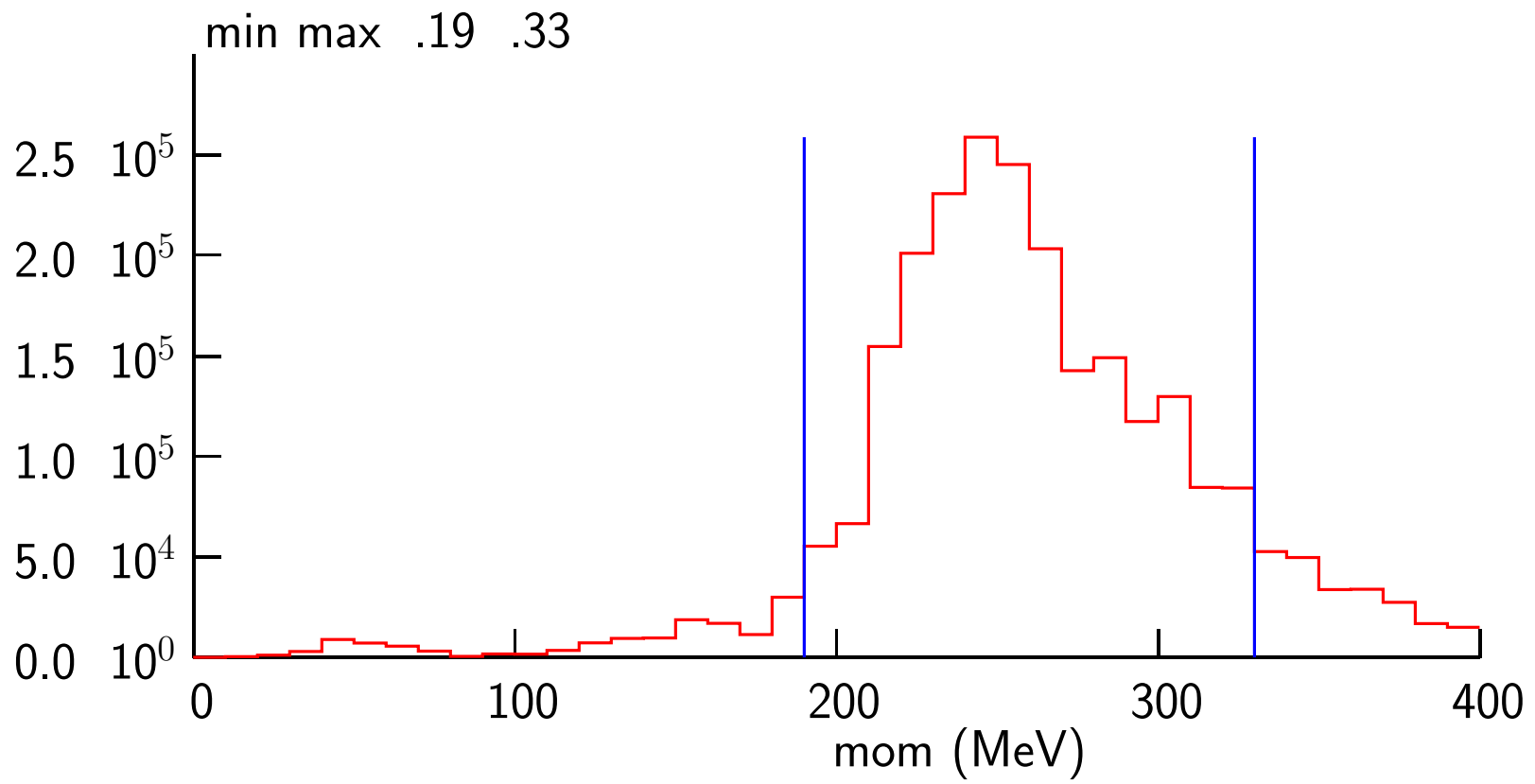
only 1% loss with 27 cm window, 3% with 25 cm  
and we still have the initial miss-match into 2 T

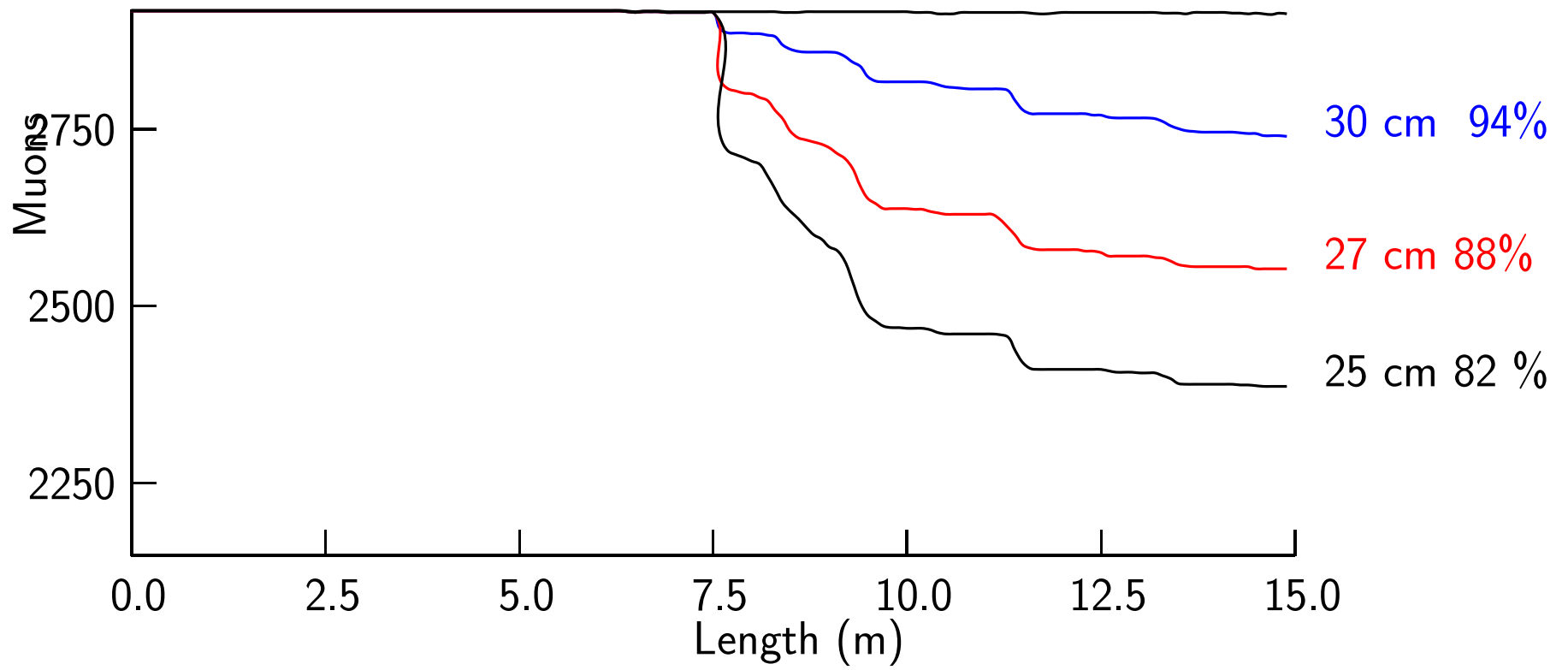
# Without match (as used by Diktys)





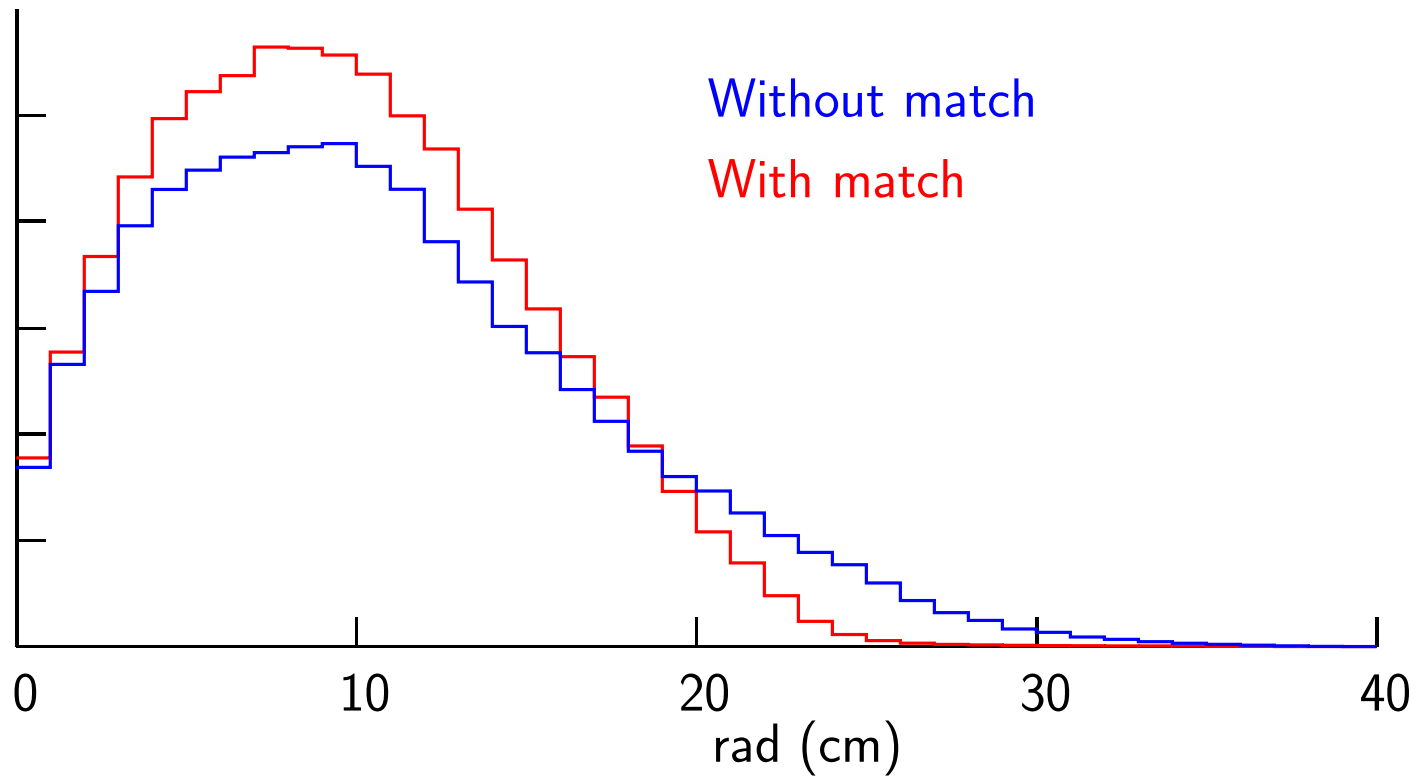




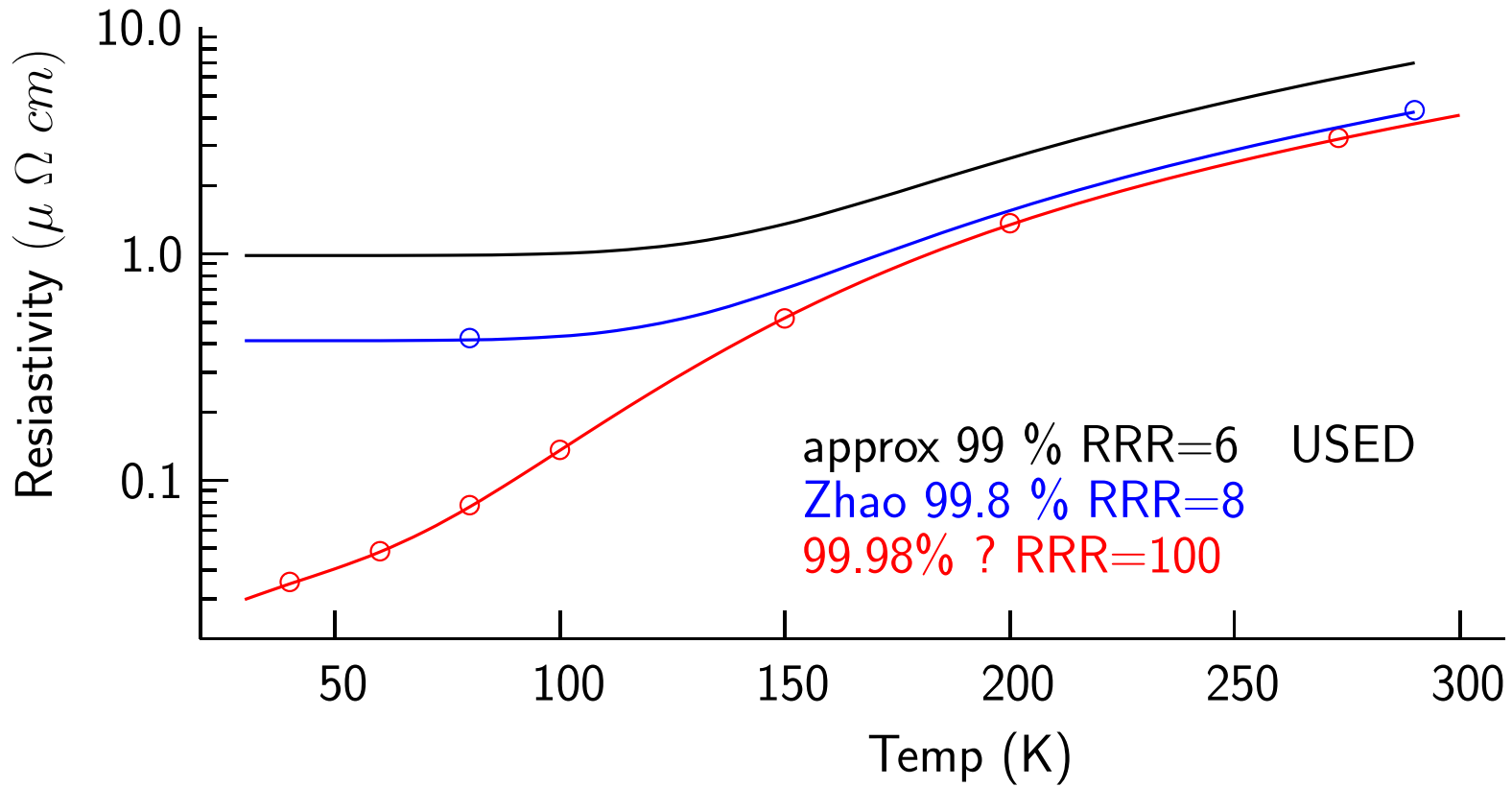




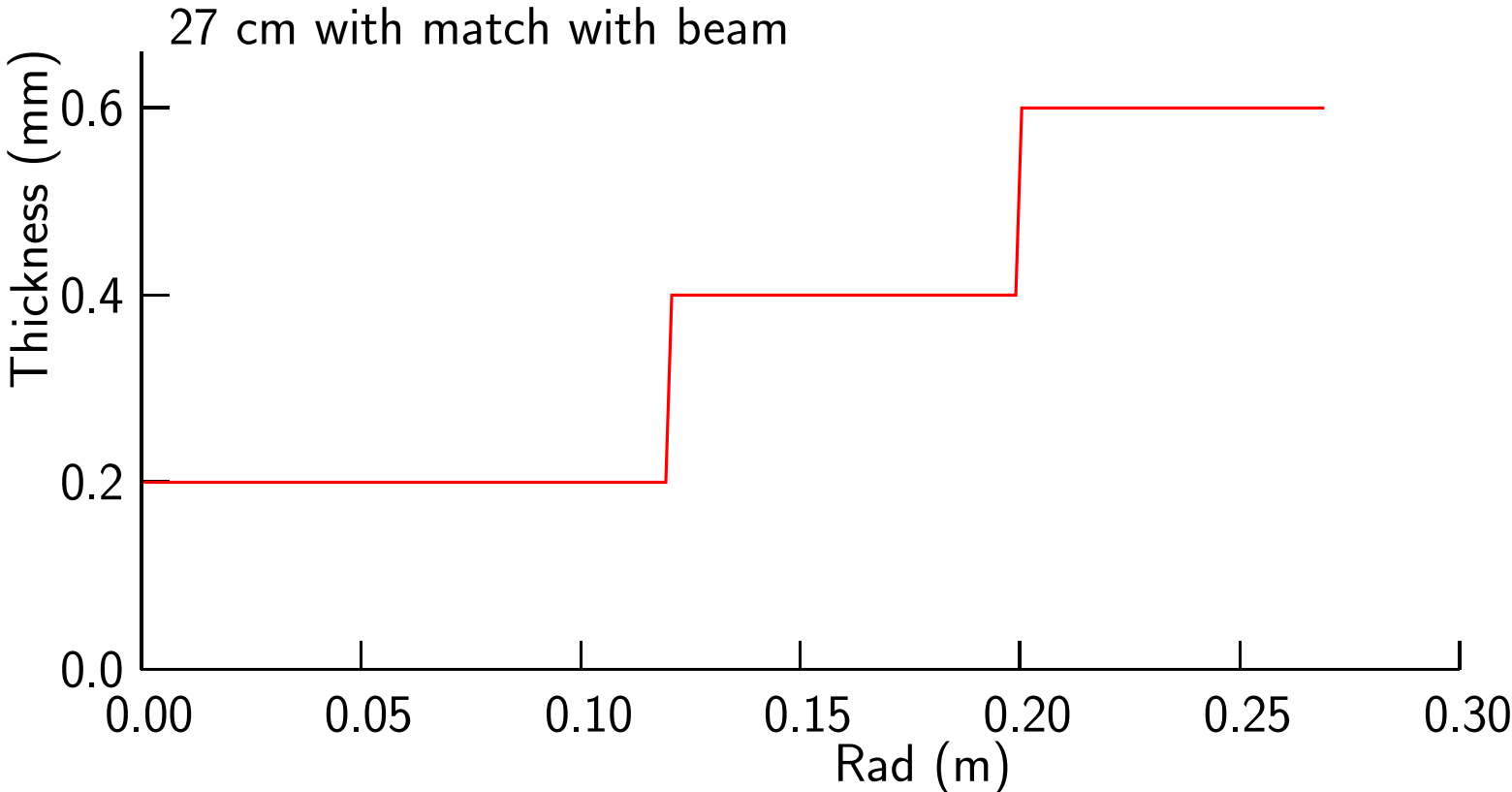
# Comparison

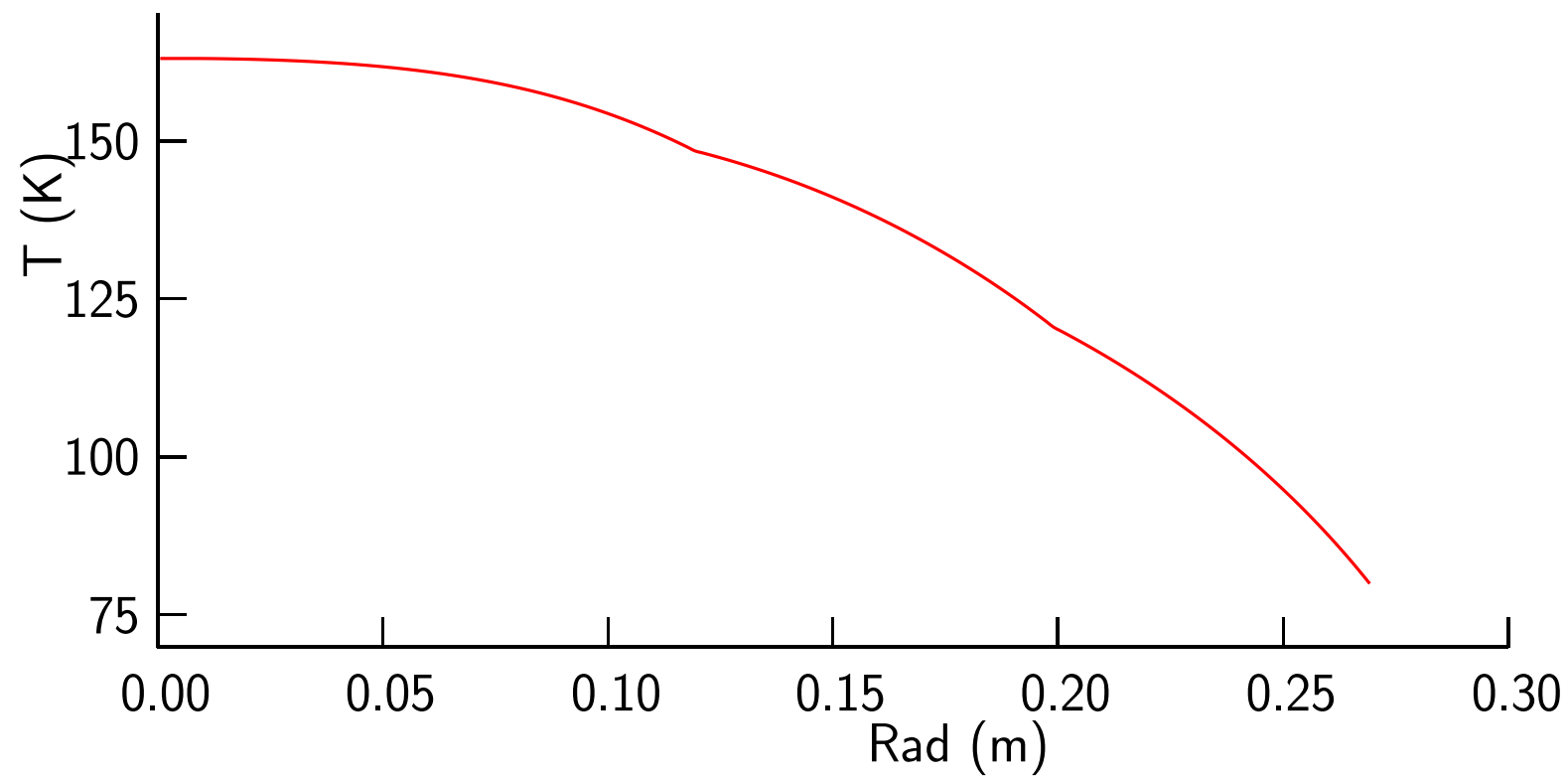


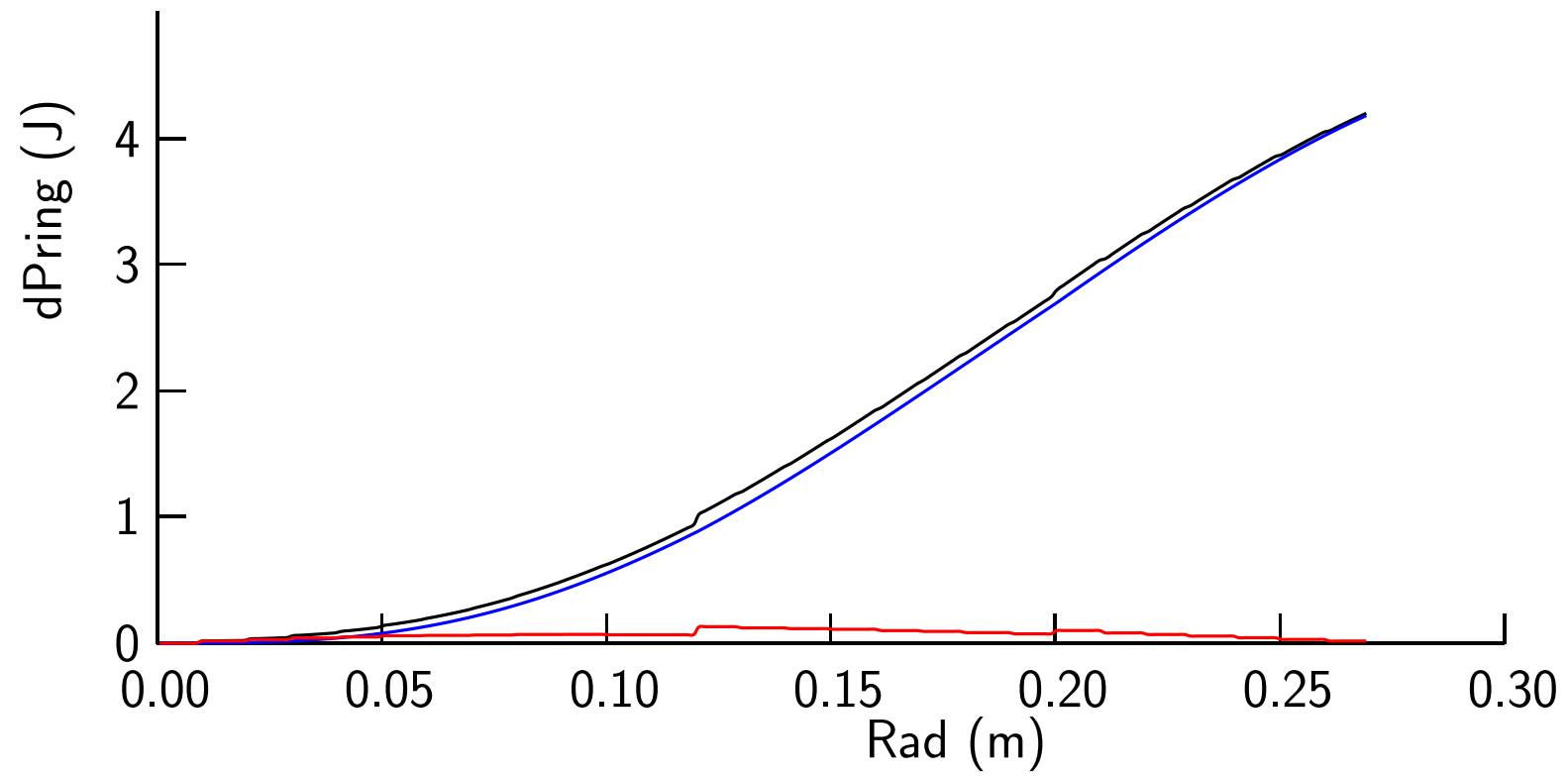
# Aside on parameters

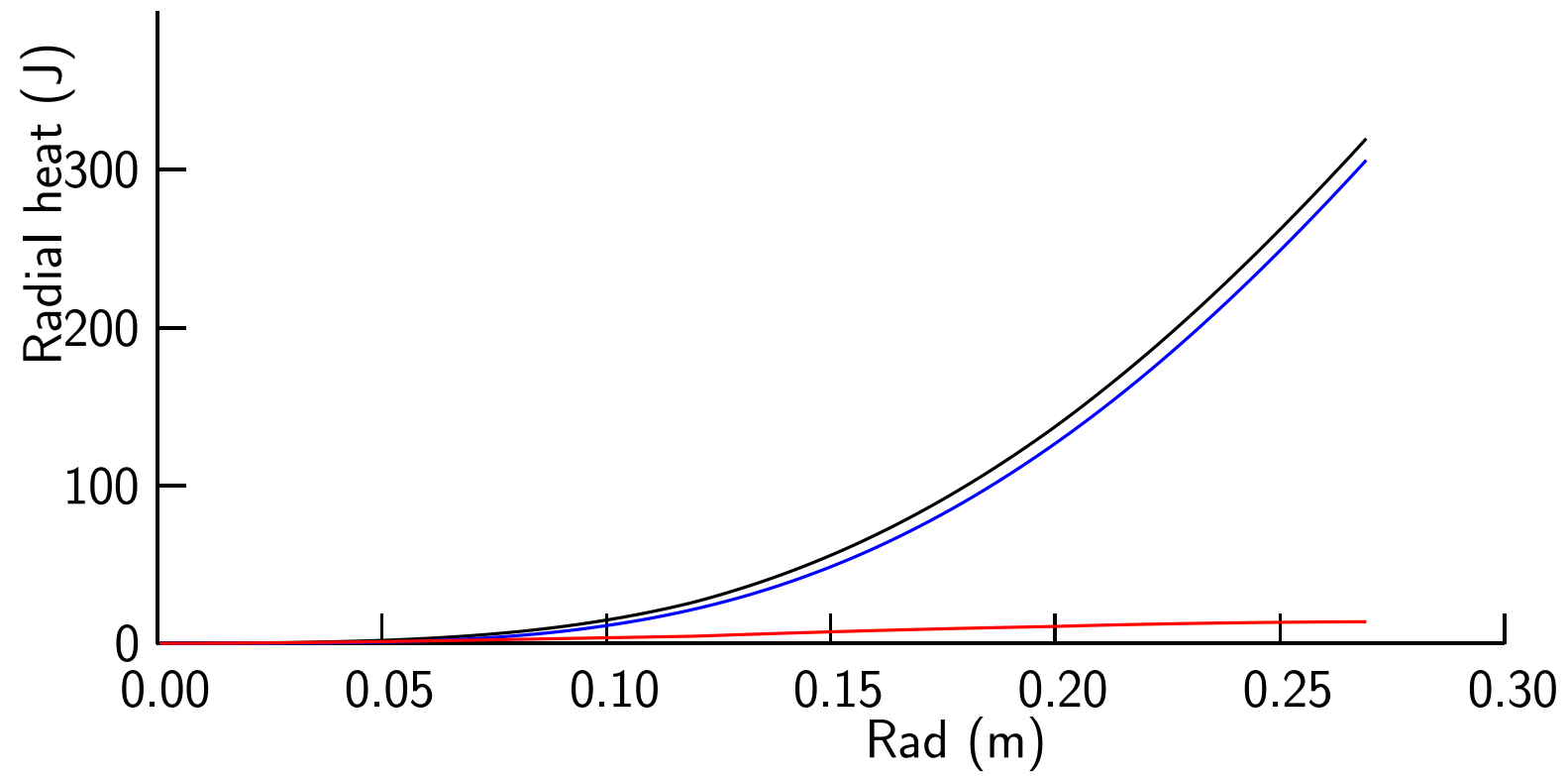


# New window 27 cm rad design









## Conclusion

- Matching reduces beam at start of 6D cooling
- The match can probably be simplified
- The reduced beam size allows smaller and much thinner Be windows